META MEC
LG Industrial Systems

LG MCCB

- Characteristics
- Type designations
- Ratings
- Trip unit
- Accessories
- Characteristics curve
- External dimensions

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ISO 14001, ISO 9001

META MEC

Adjustable Molded Case Circuit Breaker (GB-Type)

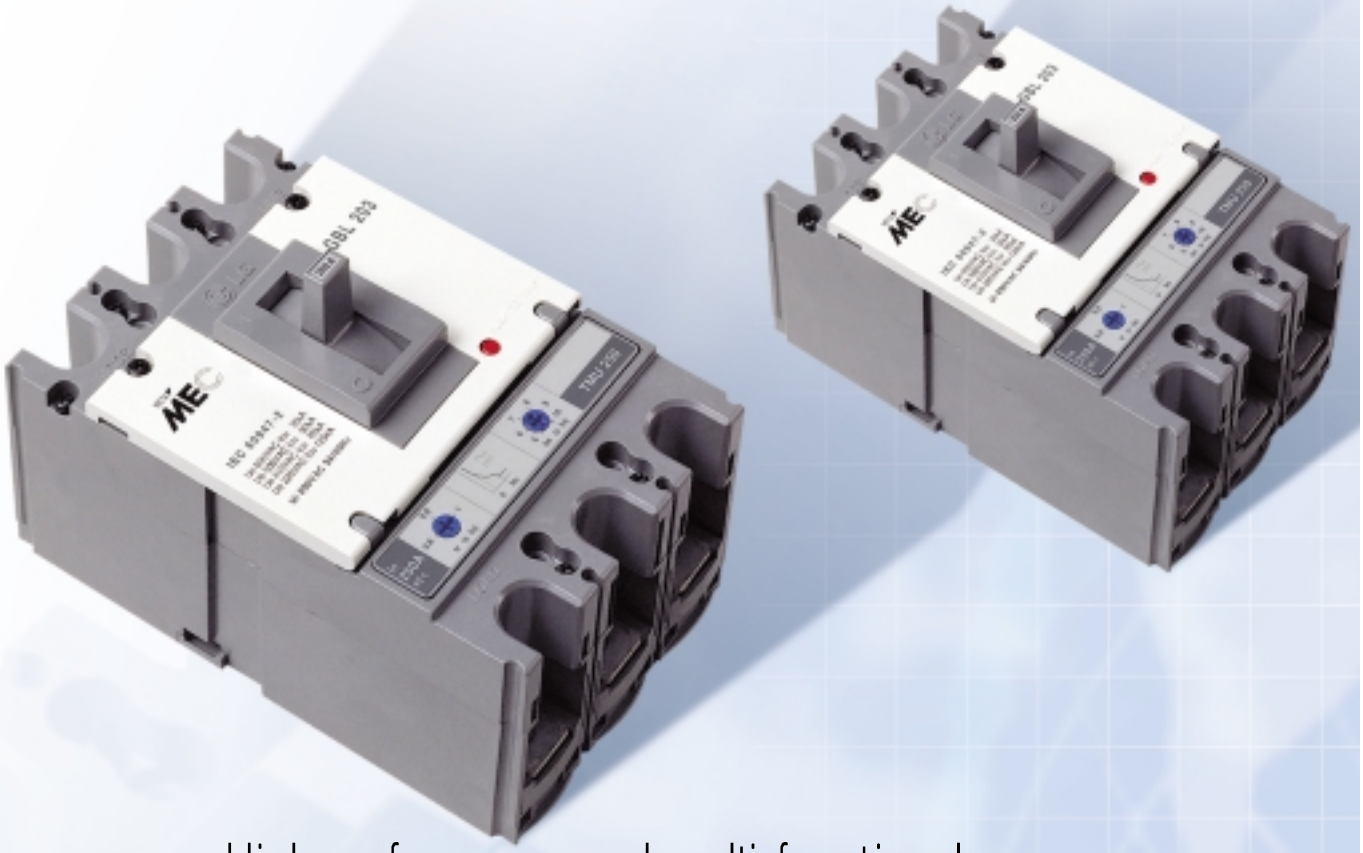
Meta - MEC Series

Adjustable Molded Case Circuit Breaker

LG Industrial Systems

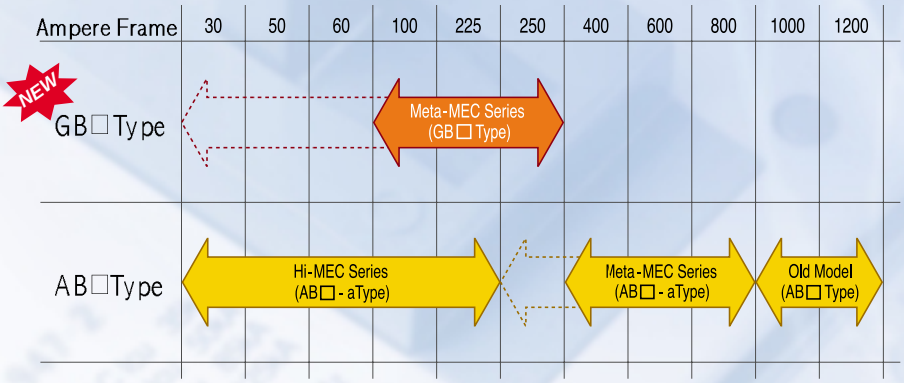
I t ' s a b o u t

M U L T



High performance and multi-functional
MCCB to meet the customer's need

AF coverage of LG MCCB



※The dotted line means that we do not have MCCB with that AF but we can cover the rated current

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F U L

Adjustable type MCCB(GB-type) (100~250 Ampere Frame)

The NEW Meta-MEC series was developed as an adjustable type and has high performance and multi-function under modern design concept

Remarkably increased breaking capacity meets the customer's need in the trend of steadily increasing the capacity of a transformer

The rated current and instantaneous current are adjustable and that solves the load control and stock management problems

Accessories are made in the customer's side concept, and new accessories such as rear connection terminal and E-handle are available with the standard offered accessories

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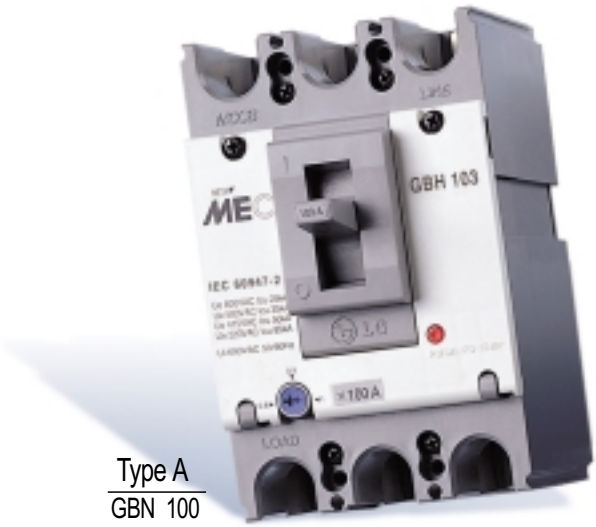
Characteristics

1. Simplified external sizes and ampere frame

- Dimension : 2 sizes (Type A , Type B)
- Ampere Frame : 2 types (100AF, 250AF)

AF / Type	100AF	250AF
	16, 20, 25, 32, 40, 50, 63, 80, 100A	125, 160, 200, 250A
GB N-type	Type A (90 ×140 ×86)	Type B (105 ×165 ×86)
GB H-type		
GB L-type		



Type A

GBN 100
GBH 100

Type B

GBL 100, 100E
GBN 250
GBH 250
GBL 250, 250E

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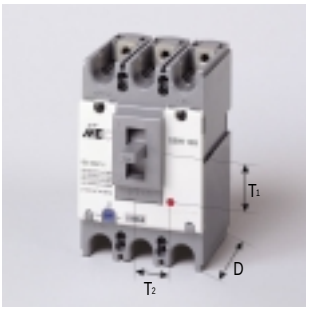
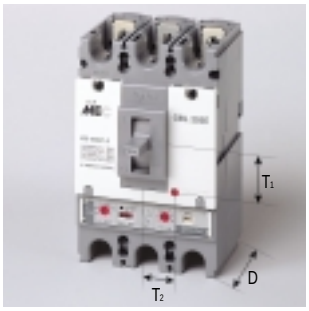
2. Unified panel cutting size

- Handle cutting size (Width × Height : 37×52mm)
- Depth and the height of a terminal : D(79mm)
- Location of trip button: T1, T2



Type A

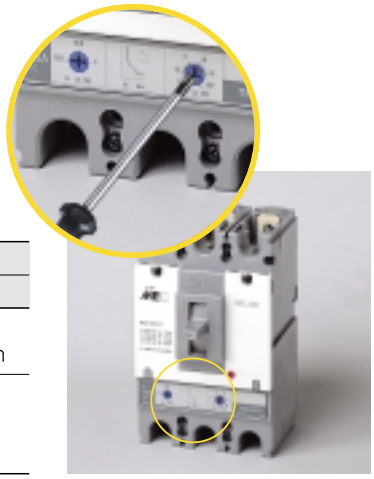


Type B

3. Adjust the rated current and instantaneous current

Type	Thermal magnetic type		Electronic type	
	100AF	250AF	100AF	250AF
Rated current	● 3 steps 0.8, 0.9, 1.0×In		● 6 steps 0.5, 0.6, 0.7, 0.8, 0.9, 1.0×In	
Instantaneous current	● Fixed type ● 10×In (100AF) min. 500A	● 6 steps 5, 6, 7, 8, 9, 10×In	● 7 steps(Note) 2, 3, 4, 5, 6, 8, 10×Ir	

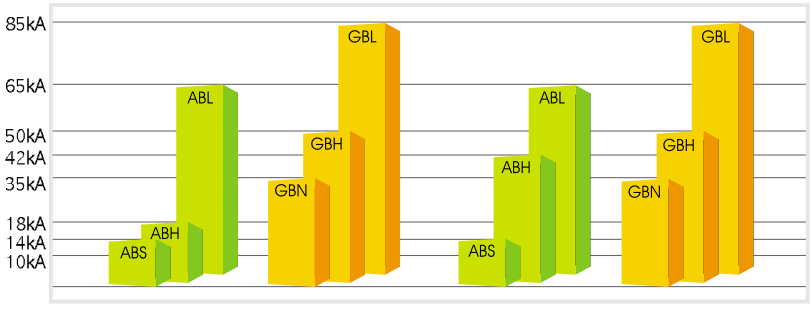
Note) In electronic type, only the short time current is adjustable (2~10×Ir)
the instantaneous current is fixed to 11 times of the rated current



4. Increased breaking capacity (kA)

- 30~300% increased breaking capacity compared with the old series in the same AF (Hi-MEC series)
- In the 'L type', the max. breaking capacity is 85 (kA) at AC 460V

Comparing the breaking capacity (Meta-MEC/Hi (AC 460V basis)



Note) Compared with the 225AF Hi-MEC series

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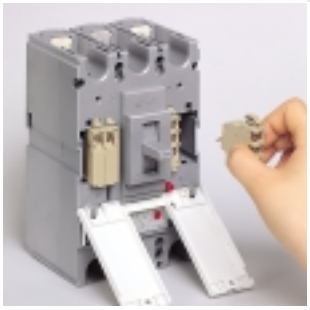
Characteristics

5. Easy to install accessories

- Easy to install and replace the cassette type accessories
- Common use of the general internal accessories (AX, AL, SHT, UVT): 100 / 250AF common use
- Adopting screw type wiring, it is easy to separate and replace the lead wire from the MCCB



6. Certifications

- Standard
  - IEC 60947-2
  - KSC 8321
- Certifications and approvals
  - CE
  - KEMA type test
  - ISO 9001/14001

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Type designations

GB N 20 3 E 250A X SHT 110V

MCCB
Global breaker

Type	
N	N-Type
H	H-Type
L	L-Type

Note) In electronic trip unit, only L-type is available

Ampere Frame	
10	100AF
20	250AF

Pole	
2	2Pole
3	3Pole
4	4Pole

Note) 2pole and 3pole are same in external size

Operational characteristics	
-	Thermal magnetic
E	Electronic

Rated current		
AF	Thermal magnetic	Electronic
100AF	16A	
	20A	
	25A	
	32A	
	40A	
	50A	
	63A	
	80A	
	100A	100A
250AF	125A	
	160A	
	200A	
	250A	250A

Terminal wiring	
-	Standard
x	Rear connection

Accessories	
AX	Auxiliary s/w
AL	Alarm s/w
SHT	Shunt trip
UVT	Under voltage trip
	Rear connection
	D-handle
	E-handle

Note) Insulation barriers are standard offered without any symbol

Operational voltage of accessories

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Ratings

Ampere Frame		AF			100AF								
Type					N-type			H-type			L-type		
		Thermal magnetic			GBN102	GBN103	GBN104	GBH102	GBH103	GBH104	GBL102	GBL103	GBL104
		Electronic type			-	-	-	-	-	-	-	GBL103E	-
Rated insulation voltage (V)	Ui				690			690			690		
Rated impulse voltage (kV)		Uimp			6			6			6		
Rated operating voltage (V)		Ue	AC voltage		600			600			600		
			DC voltage		250			250			250		
Number of pole					2	3	4	2	3	4	2	3	4
Rated current (A)	In	Thermal magnetic			16,20,25,32,40,50,63,80,100			16,20,25,32,40,50,63,80,100			16,20,25,32,40,50,63,80,100		
		Electronic			-			-			100		
Adjusted current (A)	Ir	Thermal magnetic			(0.8, 0.9, 1.0) × In			(0.8, 0.9, 1.0) × In			(0.8, 0.9, 1.0) × In		
		Electronic			-			-			(0.5, 0.6, 0.7, 0.8, 0.9, 1.0) × In		
Rated breaking capacity (kA) (Sym) KS C 8321 IEC 60947-2 NEMA AB-1	Icu		AC voltage	600V	18			25			35		
				500 / 550V	22			35			50		
				480V	30			42			65		
				440 / 460V	35			50			85		
				380 / 415V	35			50			85		
				220 / 240V	50			85			125		
			DC voltage	250V	35			50			85		
				125V	-			-			-		
	Ics			... % × Icu	75			75			75		
Short time limit	Im	Electronic		Adjustable	-			-			(2, 3, 4, 5, 6, 8, 10) × Ir		
Instantaneous	It	Thermal Magnetic (Note1)		Fixed type	10 × In			10 × In			10 × In		
		Electronic	Fixed type		-			-			11 × In		
Endurance		Mechanical			20,000			20,000			10,000		
		Electrical			10,000			10,000			5,000		
Dimensions (mm)		W × L × H (H=Panel cutting)			90 × 140 × 86(A type)			90 × 140 × 86(A type)			105 × 165 × 86(B type)		
Weight (kg)					1.1	1.2	1.5	1.1	1.2	1.5	1.5	1.7	2.1
Accessories		Auxiliary s/w		AX	■			■			■		
		Alarm s/w		AL	■			■			■		
		Shunt trip		SHT	■			■			■		
		Under voltage		UVT	■			■			■		
		Terminal cover			■			■			■		
		Insulation barrier			Standard offer			Standard offer			Standard offer		
		Rear connections			■			■			■		
		Operating handle		Direct mount	■			■			■		
				Extensible type	■			■			■		
Certifications		KEMA test (Note2)			■			■			■		
		CE-mark			■			■			■		

Accessories	12~15 Page	12~15 Page	12~15 Page
Characteristics curve	16~17 Page	16~17 Page	16~17 Page
Dimensions	18~19 Page	18~19 Page	18~19 Page

Note1) In the thermal-magnetic trip type MCCB, the short time limit current (Im) is the same with instantaneouls current (It)

Note2) The GBH103, GBL103 was approved by the KEMA test according to IEC 60947-2 at 415V, 480V

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Ampere Frame		AF			250AF								
Type					N-type			H-type			L-type		
		Thermal magnetic			GBN202	GBN203	GBN204	GBH202	GBH203	GBH204	GBL202	GBL203	GBL204
		Electronic type			-	-	-	-	-	-	-	GBL203E	-
Rated insulation voltage (V)	Ui				690			690			690		
Rated impulse voltage (kV)		Uimp			6			6			6		
Rated operating voltage (V)		Ue	AC voltage		600			600			600		
			DC voltage		250			250			250		
Number of pole					2	3	4	2	3	4	2	3	4
Rated current (A)	In	Thermal magnetic			125, 160, 200, 250			125, 160, 200, 250			125, 160, 200, 250		
		Electronic			-			-			250		
Adjusted current (A)	Ir	Thermal magnetic			(0.8, 0.9, 1.0) ×In			(0.8, 0.9, 1.0) ×In			(0.8, 0.9, 1.0) ×In		
		Electronic			-			-			(0.5, 0.6, 0.7, 0.8, 0.9, 1.0) ×In		
Rated breaking capacity (kA) (Sym) KS C 8321 IEC 60947-2 NEMA AB-1	Icu		AC voltage	600V	18			25			35		
				500 / 550V	22			35			50		
				480V	30			42			65		
				440 / 460V	35			50			85		
				380 / 415V	35			50			85		
				220 / 240V	50			85			125		
			DC voltage	250V	35			50			85		
				125V	-			-			-		
	Ics			... % ×Icu	75			75			75		
Short time limit	Im	Electronic		Adjustable	-			-			(2, 3, 4, 5, 6, 8, 10) ×Ir		
Instantaneous	It	Thermal Magnetic (Note1)		Adjustable	(5, 6, 7, 8, 9, 10) ×In			(5, 6, 7, 8, 9, 10) ×In			(5, 6, 7, 8, 9, 10) ×In		
		Electronic	Fixed type		-			-			11 ×In		
Endurance		Mechanical			10,000			10,000			10,000		
		Electrical			5,000			5,000			5,000		
Dimensions (mm)		W ×L ×H (H=Panel cutting)			105 ×165 ×86(B type)			105 ×165 ×86(B type)			105 ×165 ×86(B type)		
Weight (kg)					1.5	1.7	2.1	1.5	1.7	2.1	1.5	1.7	2.1
Accessories		Auxiliary s/w		AX	■			■			■		
		Alarm s/w		AL	■			■			■		
		Shunt trip		SHT	■			■			■		
		Under voltage		UVT	■			■			■		
		Terminal cover			■			■			■		
		Insulation barrier			Standard offer			Standard offer			Standard offer		
		Rear connections			■			■			■		
		Operating handle	Direct mount		■			■			■		
			Extensible type		■			■			■		
Certifications		KEMA test (Note2)			■			■			■		
		CE-mark			■			■			■		

Accessories	12~15 Page	12~15 Page	12~15 Page
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Dimensions	18~19 Page	18~19 Page	18~19 Page

Note1) In the thermal-magnetic trip type MCCB, the short time limit current (Im) is the same with instantaneouls current (It)

Note2) The GBH203, GBL203 was approved by the KEMA test according to IEC 60947-2 at 415V, 480V

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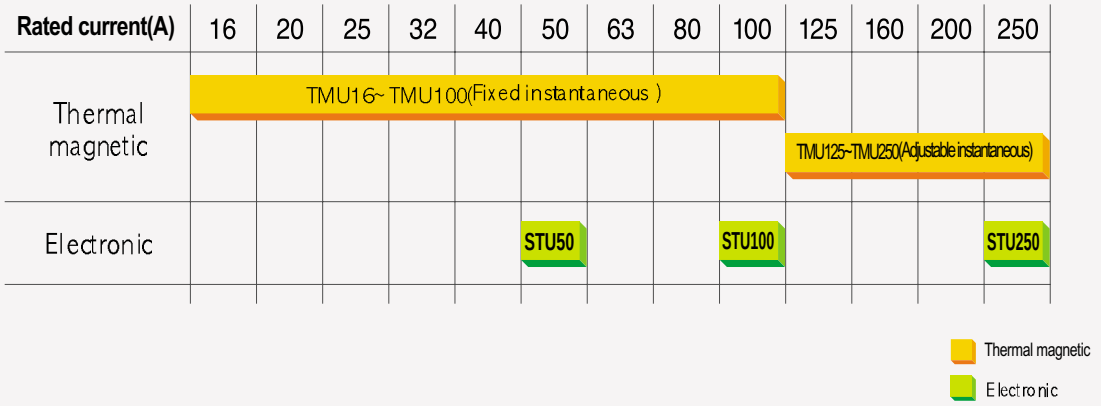
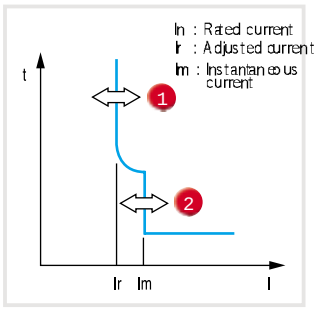
Trip unit

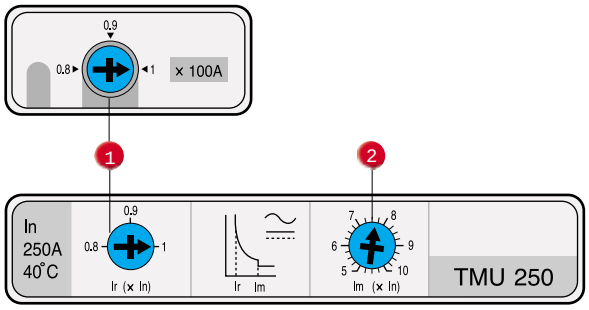
■ Two types of adjustable trip unit
TMU: Thermal magnetic trip unit
STU: Electronic trip unit



TMU type (Thermal magnetic trip unit)

1. Rated current regulating knob
   3steps: 0.8 / 0.9 / 1.0 x In
2. Instantaneous current(Im=It) regulating knob
   - Fixed instantaneous current type (at 100AF)
     : 10 x In (Min. 500A)
   - Adjustable instantaneous current type (at 250AF)
     : 5 / 6 / 7 / 8 / 9/ 10 x In (6 steps)





AF		100AF									250AF			
Trip unit		TMU16	TMU20	TMU25	TMU32	TMU40	TMU50	TMU63	TMU80	TMU100	TMU125	TMU160	TMU200	
TMU250														
Ranges	0.8 ×In	13	16	20	26	32	40	50	64	80	100	128	160	200
of the In	0.9 ×In	14	18	23	29	36	45	57	72	90	113	144	180	225
1.0 ×In		16	20	25	32	40	50	63	80	100	125	160	200	250
Ranges of the Im		500A						10 ×In			5, 6, 7, 8, 9, 10 ×In			

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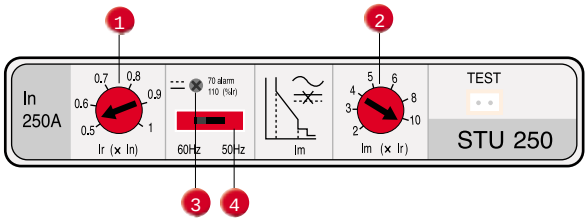
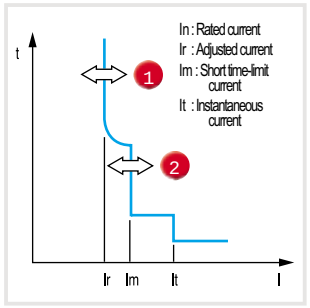
STU type (Electronic trip unit)

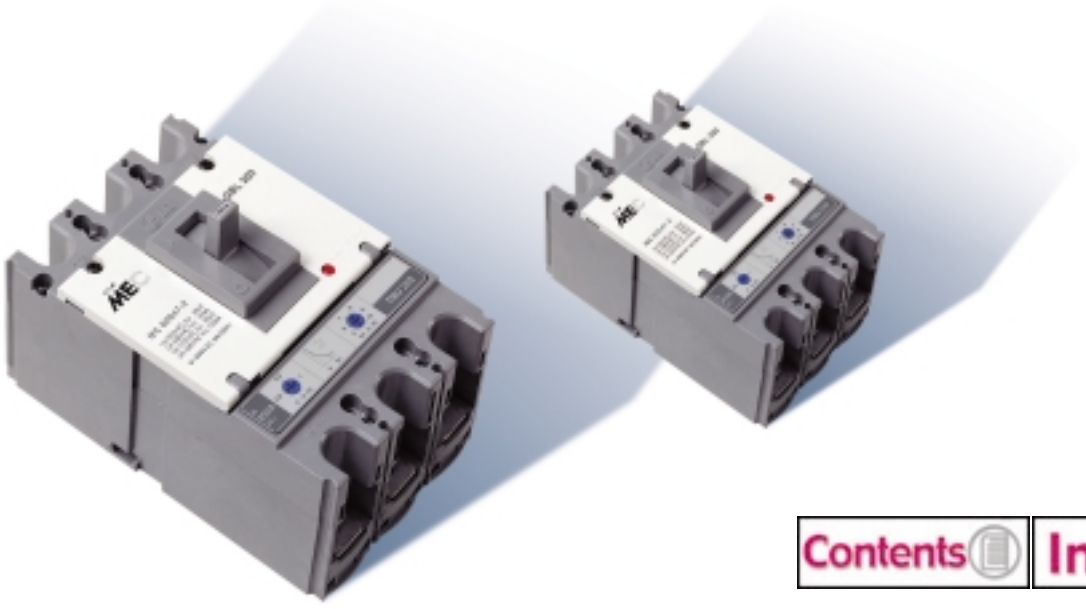
1. Rated current(In) regulating knob
   6steps: 0.5 / 0.6 / 0.7 / 0.8 / 0.9 / 1.0 x In
2. Short time-limit current(Im) regulating knob
   7steps: 2 / 3 / 4 / 5 / 6 / 8 / 10 x Ir
3. Pre-alarm LED (PAL)
   - 70~110% x Ir : LED on & off
   - Over 110% : LED on
4. Frequency selection s/w
   - 50 or 60Hz (Default is 60Hz)





Trip unit		STU50	STU100	STU250
Ranges of the In	0.5×In	25	50	125
	0.6×In	30	60	150
	0.7×In	35	70	175
	0.8×In	40	80	200
	0.9×In	45	90	225
	1.0×In	50	100	250
Ranges of the Im		2, 3, 4, 5, 6, 8, 10×Ir		
Ranges of the It		11×In		

※ Default settings of the rated current and Instantaneous current are Max. value



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Accessories

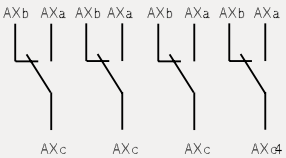
Internal accessories

Location & Max. attachable No.

Accessories	Max. attachable No.			Location
	Left	Right	Sum	
Aux. s/w(AX)	2	2	4	AX AX ON AX AX
Alarm s/w(AL)	1	1	2	AL ON AL
SHT or UVT	1	-	1	SHT or UVT ON

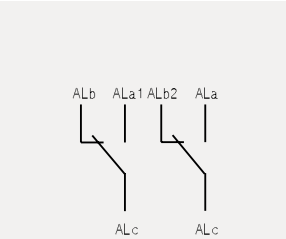
Aux. s/w (AX)

- Indicating MCCB is on or off
- Configurations
  AX1 : 1NO+1NC AX2 : 2NO+2NC
  AX3 : 3NO+3NC AX4 : 4NO+4NC



Alarm s/w (AL)

- Actuating when the MCCB is tripped
- Configurations
  AL1 : 1NO+1NC
  AL2 : 2NO+2NC



Ratings of the AX & AL

Applied MCCB	AC			DC		
	Operational voltage(V)	Max. switching current(A)		Operational voltage(V)	Max. switching current(A)	
		Resistive load	Inductive load		Resistive load	Inductive load
GBN 100, 250	125	5	3	30	4	3
GBH 100, 250	250	3	2	125	0.4	0.4
GBL 100, 250(E)				250	0.2	0.2

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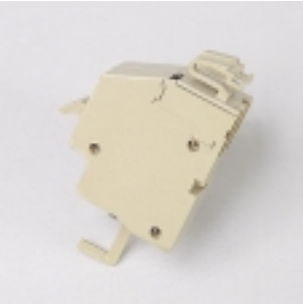
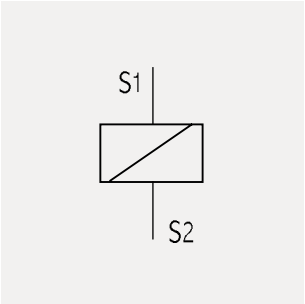


Shunt trip device (SHT)

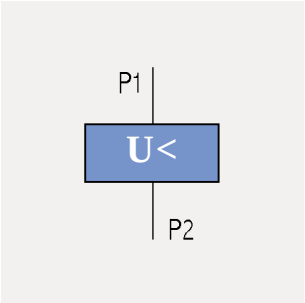
- Trips the MCCB in remote
- Operational voltage
  AC : 70~ 110% of the Vc
  DC : 70~ 125% of the Vc

* Vc : Control voltage



Under voltage trip device (UVT)

- Trips the MCCB when there is voltage drops
- Operational voltage
  AC: 20~ 70% of the Vc
  DC : 20~ 70% of the Vc
- Restore voltage
  AC: 85~ 110% of the Vc
  DC : 85~ 125% of the Vc



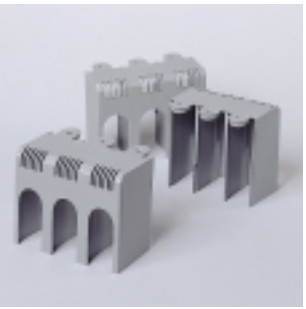
Ratings of the SHT and UVT

Applied MCCB	SHT				UVT		
	Applied voltage			Time	Applied voltage		Time
	AC,DC voltage common use	AC voltage	DC voltage		AC,DC voltage common use	AC voltage	
GBN 100, 250	12	100~125	100~110		24	380~440	
GBH 100, 250	24	200~240	125		48	440~480	
GBL 100, 250(E)	48	380~450	200~220	Continuous	100~110		Continuous
	60	440~480	240		200~220		
	250	500~550	250				

External accessories

Insulation barrier

- Provide insulation between circuit breaker poles (standard)
- Common use in 100AF, 250AF
- Please install on the line and road side of the MCCB for safety



Terminal cover

- Provide the required electrical clearance between circuit breaker poles

- Types and name of the terminal cover

Applied MCCB	2pole, 3pole	4pole
GBN 100 GBH 100	TB-13T	TB-14T
GBN, H 250 GBL 100, 250(E)	TB-23T	TB-24T

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Accessories

Direct rotary handle (D-type)

- Mechanically transfer the position of a MCCB On↔Trip↔Off
- Directly mount on the MCCB

Extended rotary handle (E-type)

- Externally operate the MCCB and can be applied to enclosures of varying depths
- According to IP54
- Standard length of a shaft is 469mm

- Types and names of the operational

Type		Applied MCCB
D-Type	D-30S D-30L D-30R	GBN / H 100
	D-60S D-60L D-60R	GBN / H 250 GBL 100, 250(E)
E-Type	E-30S E-30L E-30R	GBN / H 50, 100
	E-60S E-60L E-60R	GBN / H 250 GBL 100, 250(E)

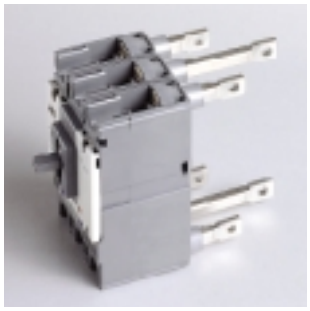
Note) S (For standard mounting) : When you install MCCB vertically use the 'S 'type operational handle
L (For line left mounting)
: Use the 'L' type operational handle
R (For line right mounting)
: Use the 'R' type operational handle

※ **Padlock the handle is available when the MCCB is On or Off condition**

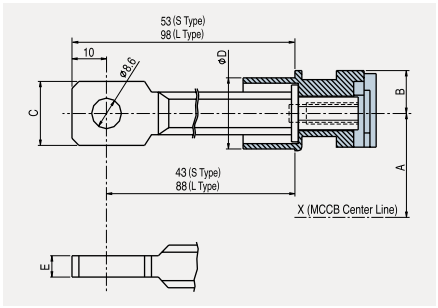
※ **Panel door does not open when the MCCB is 'On' or 'Trip' condition (When the door does not open easily use the release screw)**

Rear connection

- Replace the standard terminal with the rear connection terminal



- External dimensions



Applied MCCB	Types of rear connection	A	B	C	D	E
GBN / H 100	X-10S X-10L	63	8	16	φ14	5
GBN / H 250 GBL 100, 250	X-20S X-20L	72	12	18	φ20	6

- Types and configuration

Type / Applied MCCB	2Pole		3Pole		4Pole	
	X-102	X-202	X-103	X-203	X-104	X-204
GBN 100 GBH 100	X-10S:4pcs	-	X-10S:4pcs X-10L:2pcs	-	X-10S:4pcs X-10L:4pcs	-
GBN, H 250 GBL 100, 2 50(E)	-	X-20S:4pcs	-	X-20S:4pcs X-20L:2pcs	-	X-20S:4pcs X-20L:4pcs

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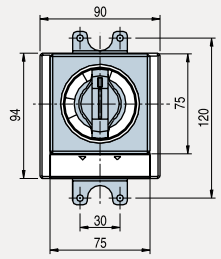
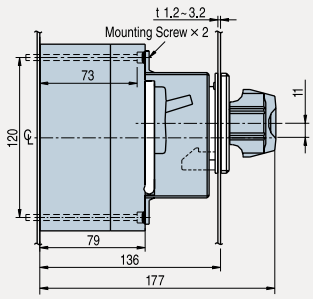
External dimensions of the operational handle

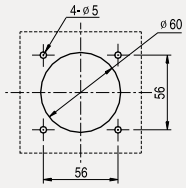
D-30S, 30L, 30R type (D-type)



Front view

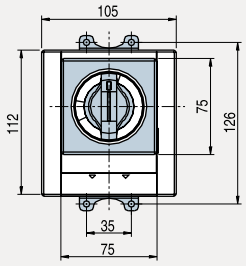


Side view

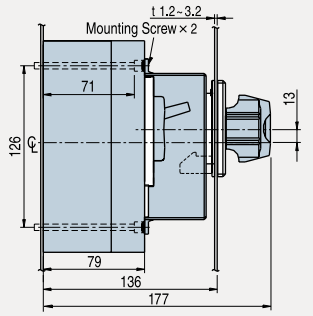


Panel cutting size

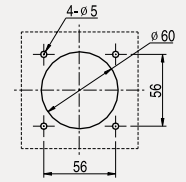
D-60S, 60L, 60R type (D-type)



Front view

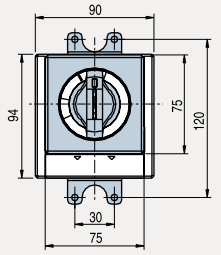


Side view

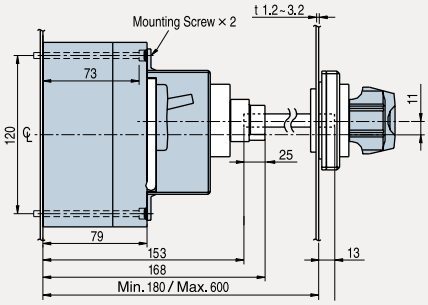


Panel cutting size

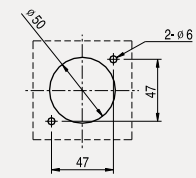
E-30S, 30L, 30R type (E-type)



Front view

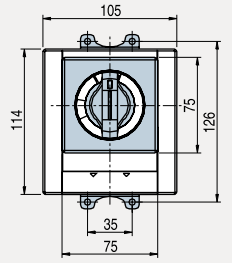


Side view

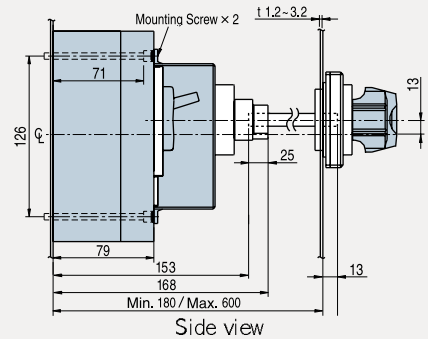


Panel cutting size

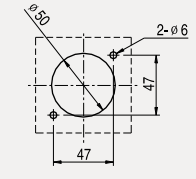
E-60S, 60L, 60R type (E-type)



Front view



Side view



Panel cutting size

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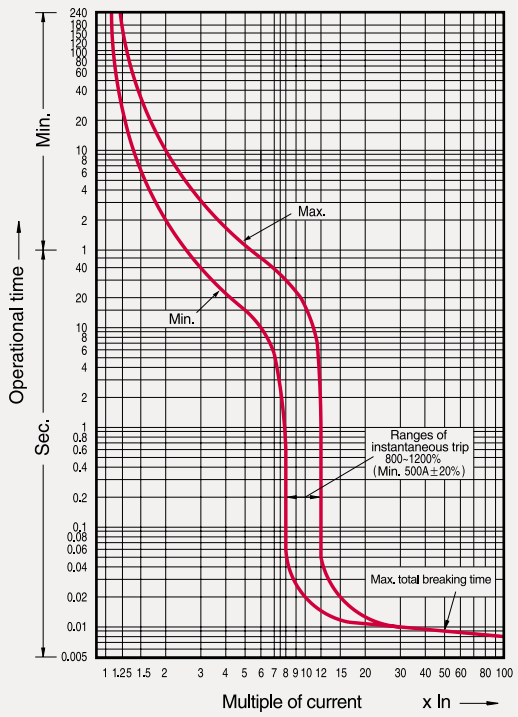
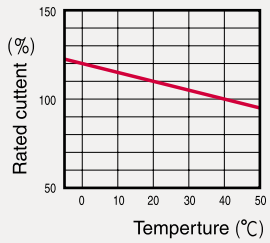
Characteristics curve

Thermal magnetic type

GBN 100 / GBH 100

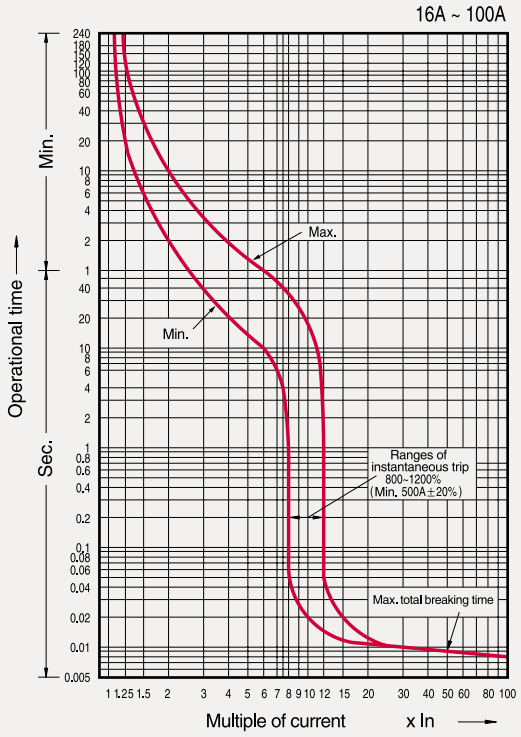


Graphs of the temperature compensation

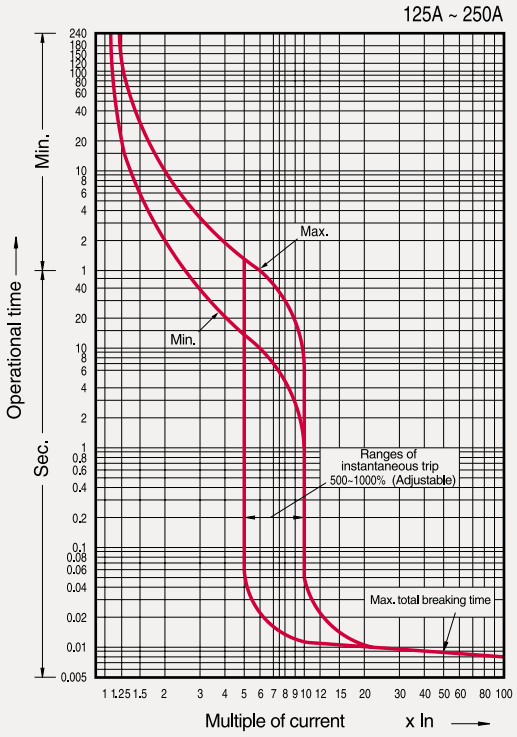


GBN 250 / GBH 250 / GBL 100, 250

16A ~ 100A



125A ~ 250A



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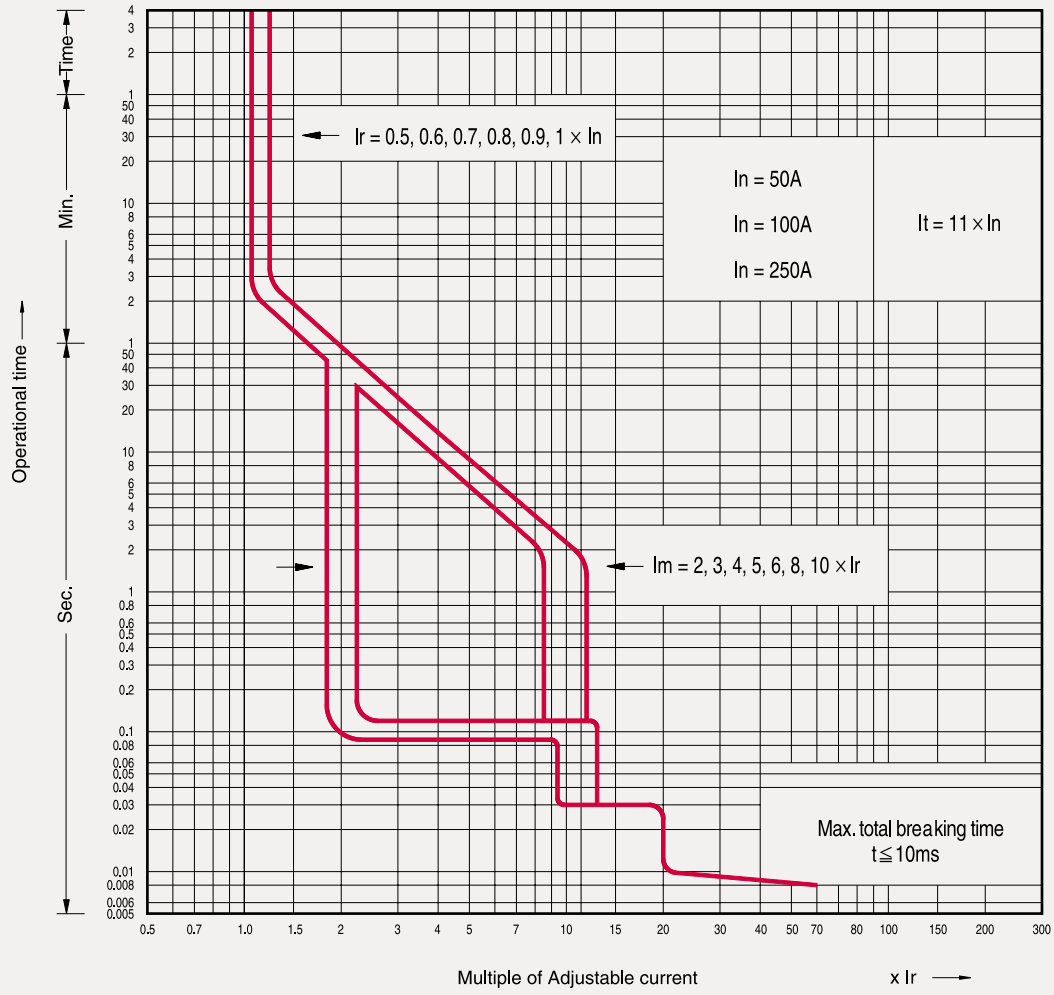
Electronic trip unit

GBL 50E, 100E, 250E



Note) In: Rated current, Ir: Adjusted current, Im: Shorttime limit current, It: Instantaneous current

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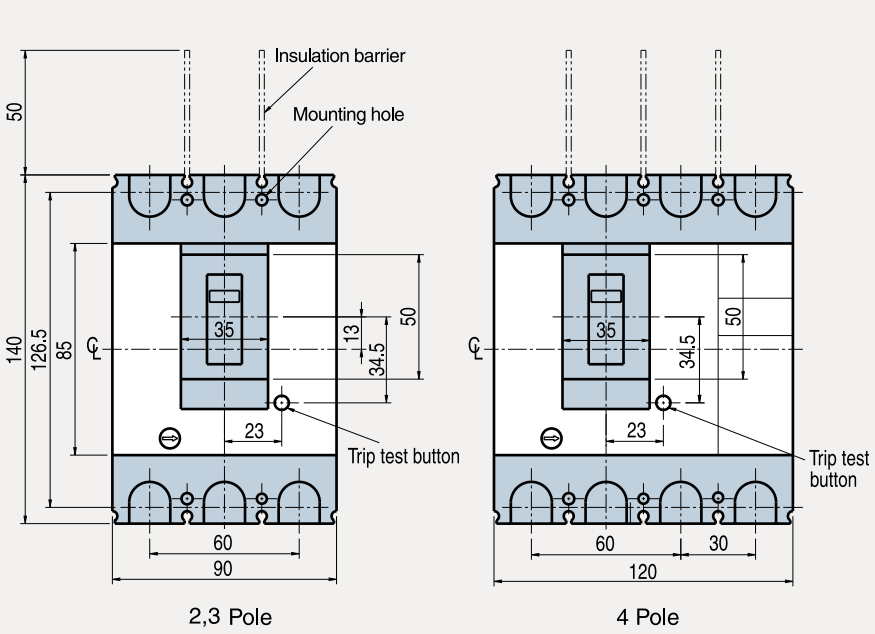
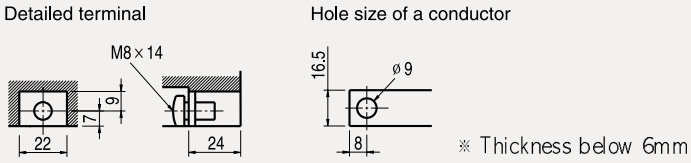
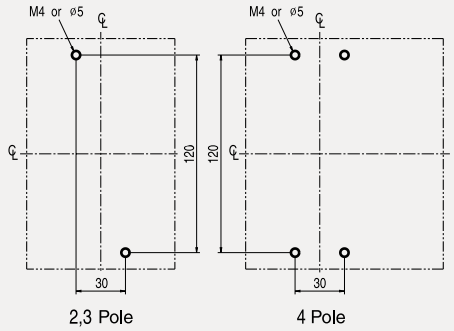
External dimensions

GBN 100 / GBH 100

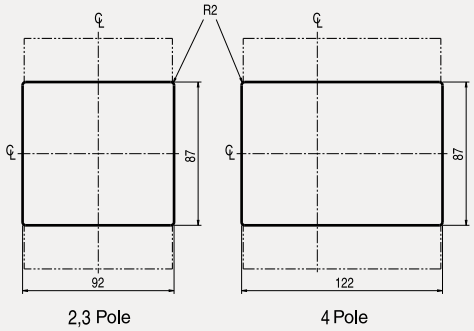




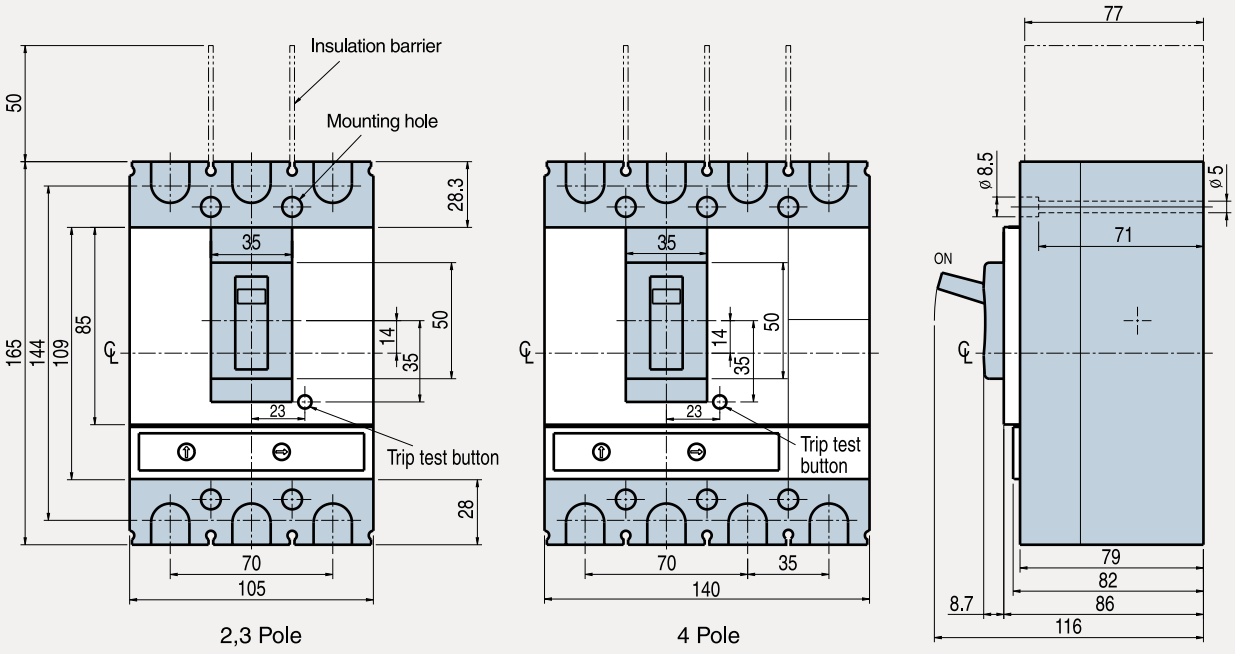
Panel mounting size



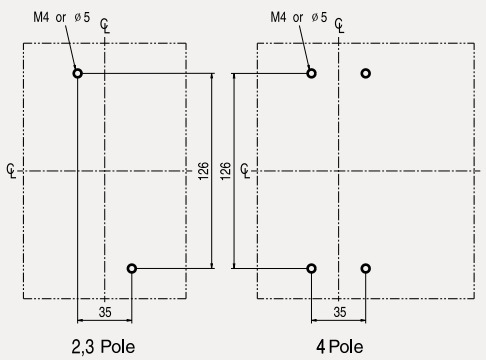
Panel cover cutting size



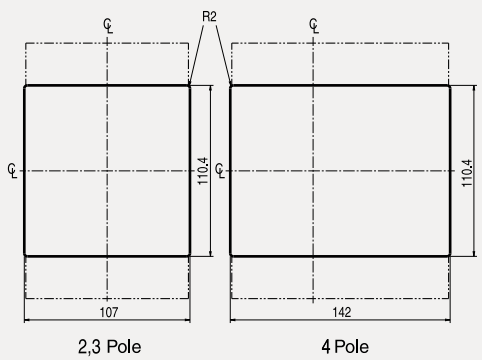
GBN 250 / GBH 250 / GBL 100, 250 / GBL 50E, 100E,



Panel mounting size



Panel cover cutting size



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LG constantly endeavors to improve our products, so that information in this catalog is subject to change without notice.

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